Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# TFT LCD Preliminary Specification

# MODEL NO.: N154I4-L01

Customer : _____

Approved by : _____

Note :

| Liquid Crystal Display Division | |
|---|---|
| QRA Division. | OA Head Division. |
| Approval | Approval |
| 陳 95.5.25 永一 | 林 95.5.24 添仁 |



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# - CONTENTS -

REVISION HISTORY ---------- 3

1. GENERAL DESCRIPTION ---------- 4
   1.1 OVERVIEW
   1.2 FEATURES
   1.3 APPLICATION
   1.4 GENERAL SPECIFICATIONS
   1.5 MECHANICAL SPECIFICATIONS

2. ABSOLUTE MAXIMUM RATINGS ---------- 5
   2.1 ABSOLUTE RATINGS OF ENVIRONMENT
   2.2 ELECTRICAL ABSOLUTE RATINGS
      2.2.1 TFT LCD MODULE
      2.2.2 BACKLIGHT UNIT

3. ELECTRICAL CHARACTERISTICS ---------- 7
   3.1 TFT LCD MODULE
   3.2 BACKLIGHT UNIT

4. BLOCK DIAGRAM ---------- 10
   4.1 TFT LCD MODULE
   4.2 BACKLIGHT UNIT

5. INPUT TERMINAL PIN ASSIGNMENT ---------- 11
   5.1 TFT LCD MODULE
   5.2 BACKLIGHT UNIT
   5.3 TIMING DIAGRAM OF LVDS INPUT SIGNAL
   5.4 COLOR DATA INPUT ASSIGNMENT
   5.5 EDID DATA STRUCTURE
   5.6 EDID SIGNAL SPECIFICATION

6. INTERFACE TIMING ---------- 19
   6.1 INPUT SIGNAL TIMING SPECIFICATIONS
   6.2 POWER ON/OFF SEQUENCE

7. OPTICAL CHARACTERISTICS ---------- 21
   7.1 TEST CONDITIONS
   7.2 OPTICAL SPECIFICATIONS

8. PRECAUTIONS ---------- 25
   8.1 HANDLING PRECAUTIONS
   8.2 STORAGE PRECAUTIONS
   8.3 OPERATION PRECAUTIONS

9. PACKING ---------- 26
   9.1 CARTON
   9.2 PALLET

10. DEFINITION OF LABELS ---------- 28
   10.1 CMO MODULE LABEL
   10.2 CARTON LABEL

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## REVISION HISTORY

| Version | Date | Page (New) | Section | Description |
|---|---|---|---|---|
| Ver 0.0 | Mar.15, 2006 | All | All | Tentative specification first issued. |
| Ver1.0 | May 24, 2006 | All | All | Preliminary specification first issued |

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# 1. GENERAL DESCRIPTION

## 1.1 OVERVIEW

N154I4-L01 is a 15.4" TFT Liquid Crystal Display module with 2 CCFLs Backlight unit and 30 pins LVDS interface. This module supports 1280 x 800 Wide-XGA mode and can display 262,144 colors. The optimum viewing angle is at 6 o'clock direction. The inverter module for Backlight is not built in.

## 1.2 FEATURES

- Thin and light weight
- WXGA (1280 x 800 pixels) resolution
- 3.3V LVDS (Low Voltage Differential Signaling) interface with 1 pixel/clock

## 1.3 APPLICATION

- TFT LCD Notebook

## 1.4 GENERAL SPECIFICATI0NS

| Item | Specification | Unit | Note |
|---|---|---|---|
| Active Area | 331.2 (H) x 207.0 (V) (15.4" diagonal) | mm | (1) |
| Bezel Opening Area | 335.0 (H) x 210.7 (V) | mm | |
| Driver Element | a-si TFT active matrix | - | - |
| Pixel Number | 1280 x R.G.B. x 800 | pixel | - |
| Pixel Pitch | 0.2588 (H) x 0.2588 (V) | mm | - |
| Pixel Arrangement | RGB vertical stripe | - | - |
| Display Colors | 262,144 | color | - |
| Transmissive Mode | Normally white | - | - |
| Surface Treatment | Hard coating (3H), Glare | - | - |

## 1.5 MECHANICAL SPECIFICATIONS

| Item | | Min. | Typ. | Max. | Unit | Note |
|---|---|---|---|---|---|---|
| Module Size | Horizontal(H) | 343.5 | 344.0 | 344.5 | mm | (1) |
| | Vertical(V) | 223.5 | 224.0 | 224.5 | mm | |
| | Depth(D) | - | 6.2 | 6.5 | mm | |
| Weight | | - | 560 | 580 | g | - |

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 2. ABSOLUTE MAXIMUM RATINGS

### 2.1 ABSOLUTE RATINGS OF ENVIRONMENT

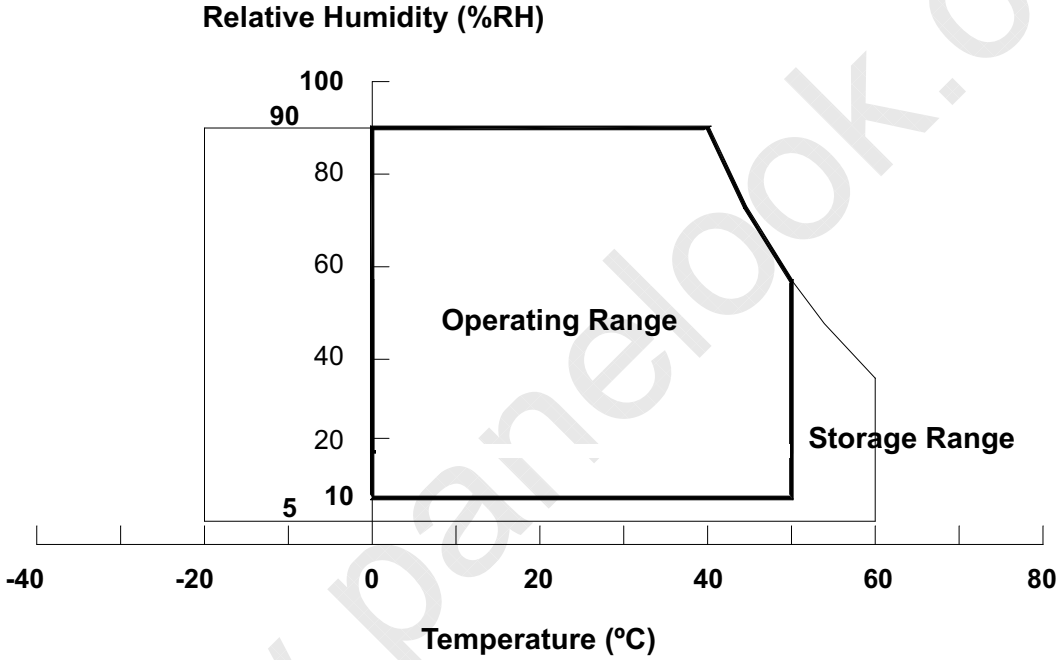
| Item | Symbol | Value | | Unit | Note |
|---|---|---|---|---|---|
| | | Min. | Max. | | |
| Storage Temperature | $T_{ST}$ | -20 | +60 | ºC | (1) |
| Operating Ambient Temperature | $T_{OP}$ | 0 | +50 | ºC | (1), (2) |
| Shock (Non-Operating) | $S_{NOP}$ | - | 220/2 | G/ms | (3), (5) |
| Vibration (Non-Operating) | $V_{NOP}$ | - | 1.5 | G | (4), (5) |

Note (1) (a) 90 %RH Max. (Ta <= 40 ºC).

(b) Wet-bulb temperature should be 39 ºC Max. (Ta > 40 ºC).

(c) No condensation.

Note (2) The temperature of panel surface should be 0 ºC min. and 50 ºC max.

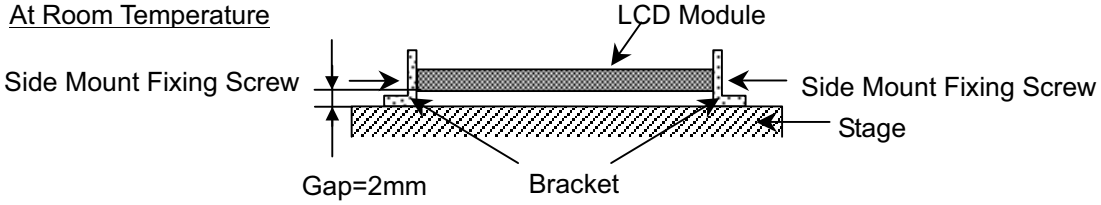



Note (3) 1 time for ± X, ± Y, ± Z. for Condition (220G / 2ms) is half Sine Wave,.

Note (4) 10~200 Hz, 0.5hr/cycle 1cycle for X,Y,Z

Note (5) At testing Vibration and Shock, the fixture in holding the module has to be hard and rigid enough so that the module would not be twisted or bent by the fixture.

The fixing condition is shown as below:






One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 2.2 ELECTRICAL ABSOLUTE RATINGS

### 2.2.1 TFT LCD MODULE

| Item | Symbol | Value | | Unit | Note |
|---|---|---|---|---|---|
| | | Min. | Max. | | |
| Power Supply Voltage | Vcc | -0.3 | +4.0 | V | (1) |
| Logic Input Voltage | $V_{IN}$ | -0.3 | Vcc+0.3 | V | |

### 2.2.2 BACKLIGHT UNIT

| Item | Symbol | Value | | Unit | Note |
|---|---|---|---|---|---|
| | | Min. | Max. | | |
| Lamp Voltage | $V_L$ | - | 2.5K | $V_{RMS}$ | Lamp Voltage |
| Lamp Current | $I_L$ | 2.0 | 7.0 | $mA_{RMS}$ | Lamp Current |
| Lamp Frequency | $F_L$ | 45 | 80 | KHz | Lamp Frequency |

Note (1) Permanent damage to the device may occur if maximum values are exceeded. Function operation should be restricted to the conditions described under Normal Operating Conditions.

Note (2) Specified values are for lamp (Refer to Section 3.2 for further information).

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 3. ELECTRICAL CHARACTERISTICS

### 3.1 TFT LCD MODULE

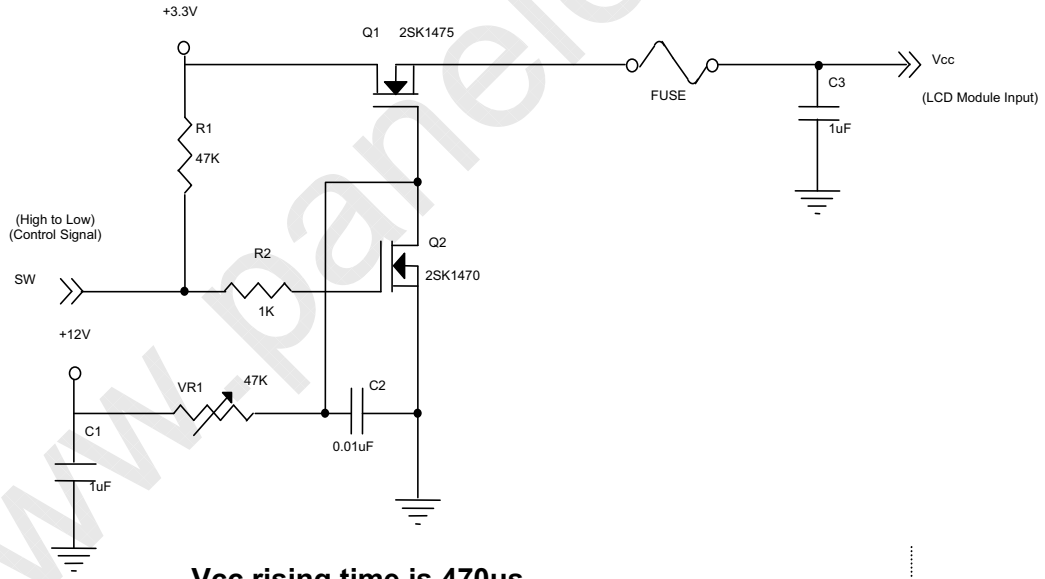
| Parameter | | Symbol | Value | | | Unit | Note |
|---|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | | |
| Power Supply Voltage | | Vcc | 3.0 | 3.3 | 3.6 | V | - |
| Permissive Ripple Voltage | | $V_{RP}$ | - | 50 | - | mV | - |
| Rush Current | | $I_{RUSH}$ | - | - | 1.5 | A | (2) |
| Initial Stage Current | | $I_{IS}$ | - | - | 1.0 | A | (2) |
| Power Supply Current | White | Icc | - | 330 | 360 | mA | (3)a |
| | Black | | - | 460 | 500 | mA | (3)b |
| LVDS Differential Input High Threshold | | $V_{TH(LVDS)}$ | - | - | +100 | mV | (5), $V_{CM}$=1.2V |
| LVDS Differential Input Low Threshold | | $V_{TL(LVDS)}$ | -100 | - | - | mV | (5) $V_{CM}$=1.2V |
| LVDS Common Mode Voltage | | $V_{CM}$ | 1.125 | - | 1.375 | V | (5) |
| LVDS Differential Input Voltage | | $\|V_{ID}\|$ | 100 | - | 600 | mV | (5) |
| Terminating Resistor | | $R_T$ | - | 100 | - | Ohm | |
| Power per EBL WG | | $P_{EBL}$ | - | 4.4 | - | W | (4) |

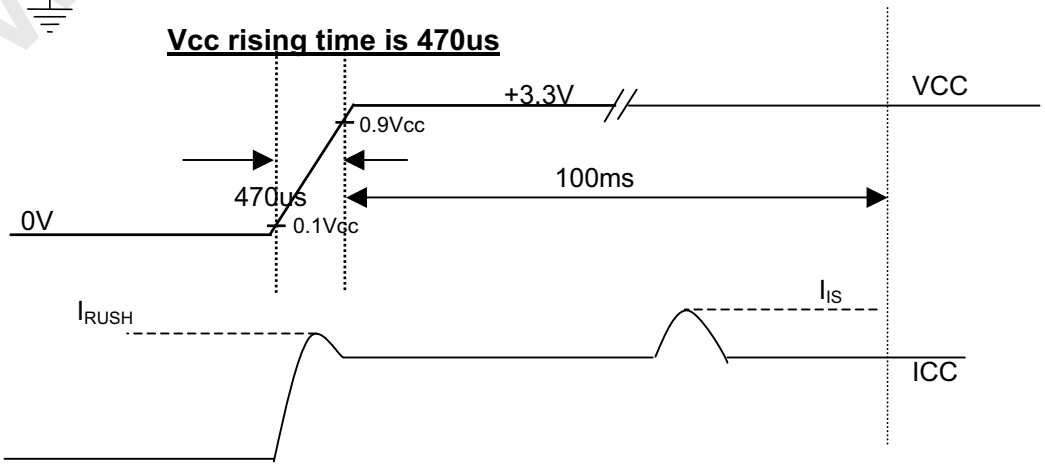
Note (1) The ambient temperature is Ta = 25 ± 2 ºC.

Note (2) $I_{RUSH}$: the maximum current when VCC is rising

$I_{IS}$: the maximum current of the first 100ms after power-on

Measurement Conditions: Shown as the following figure. Test pattern: black.





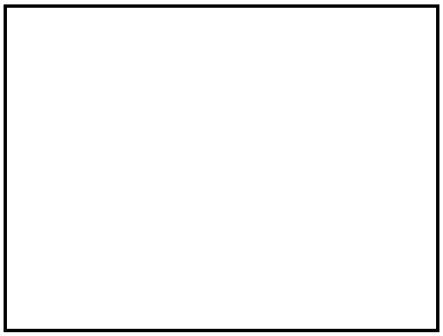

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



Note (3) The specified power supply current is under the conditions at Vcc = 3.3 V, Ta = 25 ± 2 ºC, $f_v$ = 60 Hz, whereas a power dissipation check pattern below is displayed.

a. White Pattern



Active Area

b. Black Pattern

Active Area

Note (4) The specified power are the sum of LCD panel electronics input power and the inverter input power. Test conditions are as follows.

(a) Vcc = 3.3 V, Ta = 25 ± 2 ºC, $f_v$ = 60 Hz,

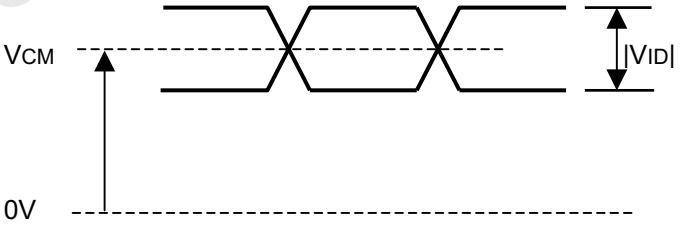
(b) The pattern used is a black and white 32 x 36 checkerboard, slide #100 from the VESA file "Flat Panel Display Monitor Setup Patterns", FPDMSU.ppt.

(c) Luminance: 60 nits.

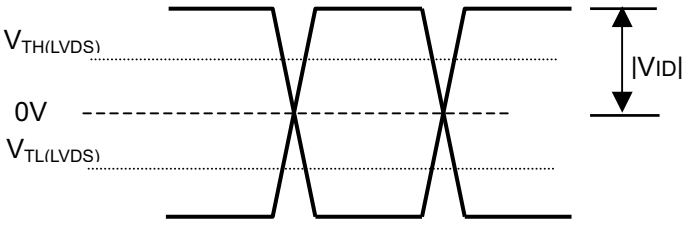
(d) The inverter used is provided from _____. Please contact them for detail information. CMO doesn't provide the inverter in this product.

Note (5) The parameters of LVDS signals are defined as the following figures.

**Single Ended**




**Differential**






One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

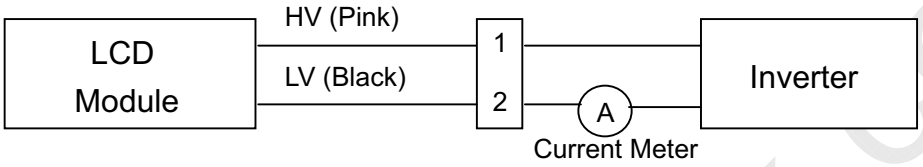


3.2 BACKLIGHT UNIT

Ta = 25 ± 2 ºC

| Parameter | Symbol | Value | | | Unit | Note |
|---|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | | |
| Lamp Input Voltage | $V_L$ | 657 | 730 | 803 | $V_{RMS}$ | $I_L$ = 6.0 mA |
| Lamp Current | $I_L$ | 2.0 | 6.0 | 6.5 | $mA_{RMS}$ | (1),(2) |
| | | 3.0 | | | | (1),(3) |
| Lamp Turn On Voltage | $V_S$ | - | - | 1460(25 °C) | $V_{RMS}$ | (4) |
| | | - | - | 1600(0 °C) | $V_{RMS}$ | (4) |
| Operating Frequency | $F_L$ | 45 | - | 80 | KHz | (5) |
| Lamp Life Time | $L_{BL}$ | (12,000) | - | - | Hrs | (7) |
| Power Consumption | $P_L$ | - | (8.76) | - | W | (6), $I_L$ = 6.0 mA |

Note (1) Lamp current is measured by utilizing a high frequency current meter as shown below:




Note (2) for burst mode inverter design

Note (3) for continuous mode inverter design

Note (4) The voltage shown above should be applied to the lamp for more than 1 second after startup. Otherwise the lamp may not be turned on.

Note (5) The lamp frequency may generate interference with horizontal synchronous frequency from the display, and this may cause line flow on the display. In order to avoid interference, the lamp frequency should be detached from the horizontal synchronous frequency and its harmonics as far as possible.

Note (6) $P_L = I_L \times V_L$

Note (7) The lifetime of lamp is defined as the time when it continues to operate under the conditions at Ta = 25 ±2 °C and $I_L$ = 6.5 $mA_{RMS}$ until one of the following events occurs:

(a) When the brightness becomes ≦ 50% of its original value.

(b) When the effective ignition length becomes ≦ 80% of its original value. (Effective ignition length is defined as an area that the brightness is less than 70% compared to the center point.)

Note (8) The waveform of the voltage output of inverter must be area-symmetric and the design of the inverter must have specifications for the modularized lamp. The performance of the Backlight, such as lifetime or brightness, is greatly influenced by the characteristics of the DC-AC inverter for the lamp. All the parameters of an inverter should be carefully designed to avoid generating too much current leakage from high voltage output of the inverter. When designing or ordering the inverter please make sure that a poor lighting caused by the mismatch of the Backlight and the inverter (miss-lighting, flicker, etc.) never occurs. If the above situation is confirmed, the module should be operated in the same manners when it is installed in your instrument.



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

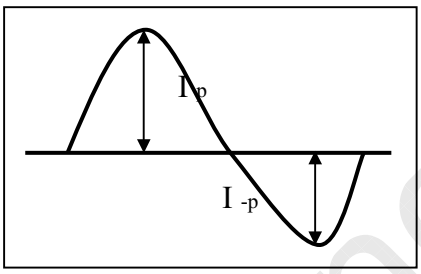
Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



The output of the inverter must have symmetrical (negative and positive) voltage waveform and symmetrical current waveform.(Unsymmetrical ratio is less than 10%) Please do not use the inverter, which has unsymmetrical voltage and unsymmetrical current and spike wave. Lamp frequency may produce interface with horizontal synchronous frequency and as a result this may cause beat on the display. Therefore lamp frequency shall be as away possible from the horizontal synchronous frequency and from its harmonics in order to prevent interference.

Requirements for a system inverter design, which is intended to have a better display performance, a better power efficiency and a more reliable lamp. It shall help increase the lamp lifetime and reduce its leakage current.

a. The asymmetry rate of the inverter waveform should be 10% below;
b. The distortion rate of the waveform should be within $\sqrt{2} \pm 10\%$;
c. The ideal sine wave form shall be symmetric in positive and negative polarities.




* Asymmetry rate:

$$| I_p - I_{-p} | / I_{rms} * 100\%$$

* Distortion rate

$$I_p \text{ (or } I_{-p}) / I_{rms}$$

www.panelook.com



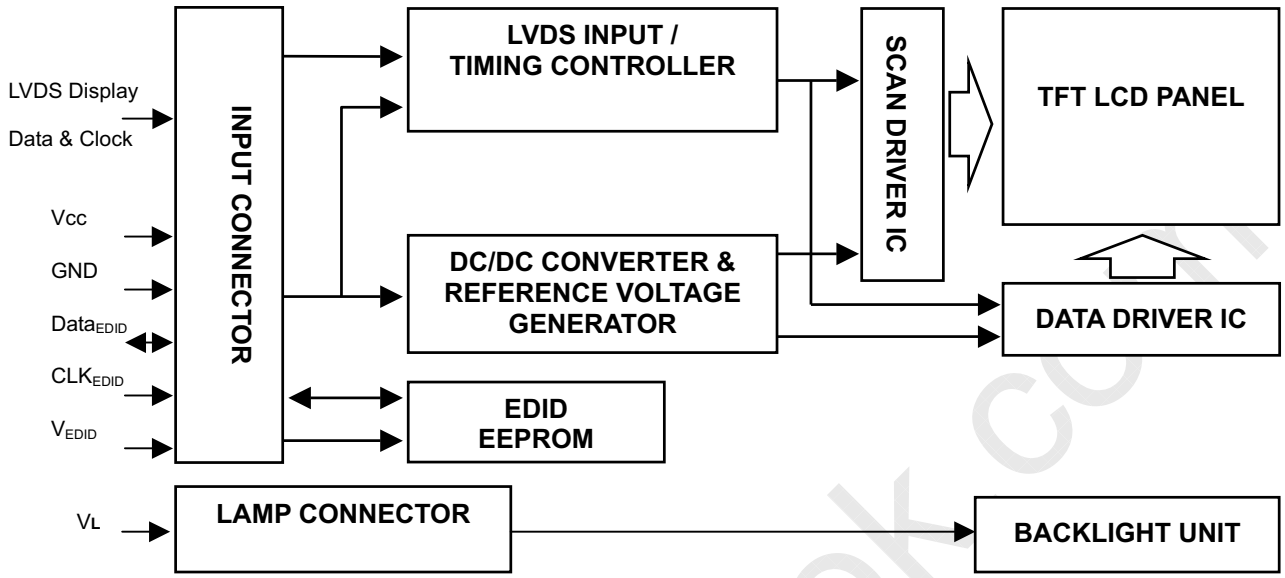
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

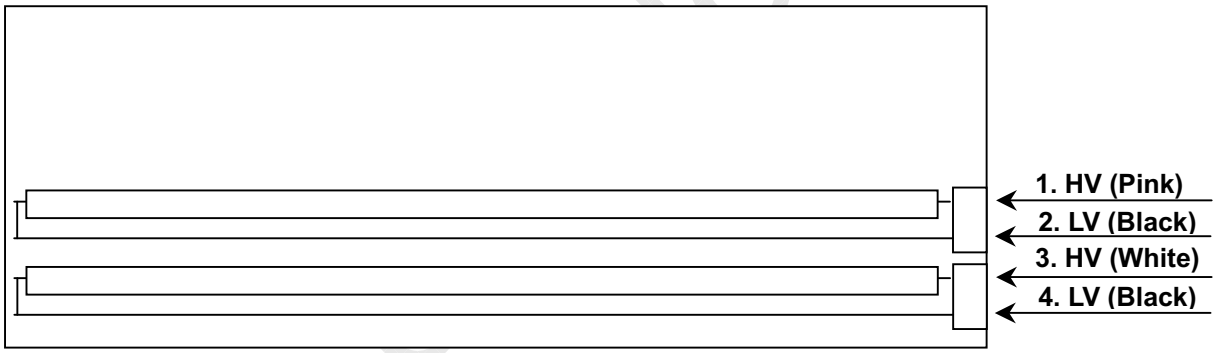


# 4. BLOCK DIAGRAM

## 4.1 TFT LCD MODULE




## 4.2 BACKLIGHT UNIT






One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 5. INPUT TERMINAL PIN ASSIGNMENT

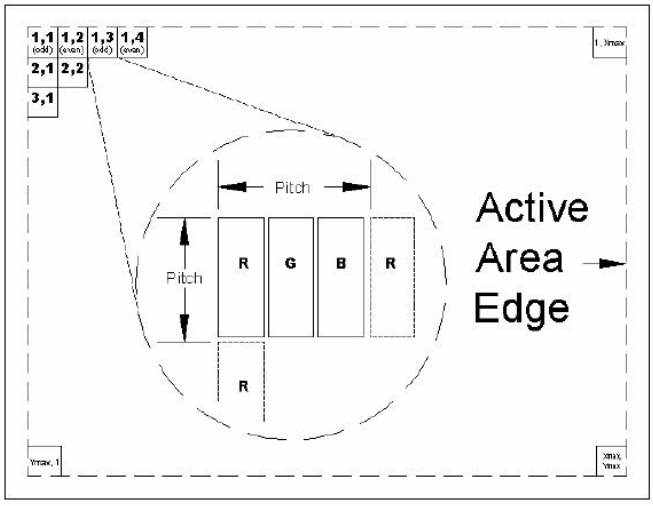
### 5.1 TFT LCD MODULE

| Pin | Symbol | Description | Polarity | Remark |
|---|---|---|---|---|
| 1 | Vss | Ground | | |
| 2 | Vcc | Power Supply +3.3 V (typical) | | |
| 3 | Vcc | Power Supply +3.3 V (typical) | | |
| 4 | $V_{EDID}$ | DDC 3.3V Power | | DDC 3.3V Power |
| 5 | NC | Non-Connection | | |
| 6 | $CLK_{EDID}$ | DDC Clock | | DDC Clock |
| 7 | $DATA_{EDID}$ | DDC Data | | DDC Data |
| 8 | Rxin0- | LVDS Differential Data Input | Negative | R0~R5,G0 |
| 9 | Rxin0+ | LVDS Differential Data Input | Positive | |
| 10 | Vss | Ground | | |
| 11 | Rxin1- | LVDS Differential Data Input | Negative | G1~G5, B0, B1 |
| 12 | Rxin1+ | LVDS Differential Data Input | Positive | |
| 13 | Vss | Ground | | |
| 14 | Rxin2- | LVDS Differential Data Input | Negative | B2~B5, DE, Hsync, Vsync |
| 15 | Rxin2+ | LVDS Differential Data Input | Positive | |
| 16 | Vss | Ground | | |
| 17 | CLK- | LVDS Clock Data Input | Negative | LVDS Level Clock |
| 18 | CLK+ | LVDS Clock Data Input | Positive | |
| 19 | Vss | Ground | | |
| 20 | NC | Non-Connection | | |
| 21 | NC | Non-Connection | | |
| 22 | Vss | Ground | | |
| 23 | NC | Non-Connection | | |
| 24 | NC | Non-Connection | | |
| 25 | Vss | Ground | | |
| 26 | NC | Non-Connection | | |
| 27 | NC | Non-Connection | | |
| 28 | Vss | Ground | | |
| 29 | NC | Non-Connection | | |
| 30 | NC | Non-Connection | | |

Note (1) Connector Part No.: JAE-FI-XB30S-HF10 or equivalent

Note (2) User's connector Part No: FI-X30M or equivalent

Note (3) The first pixel is odd as shown in the following figure.






One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



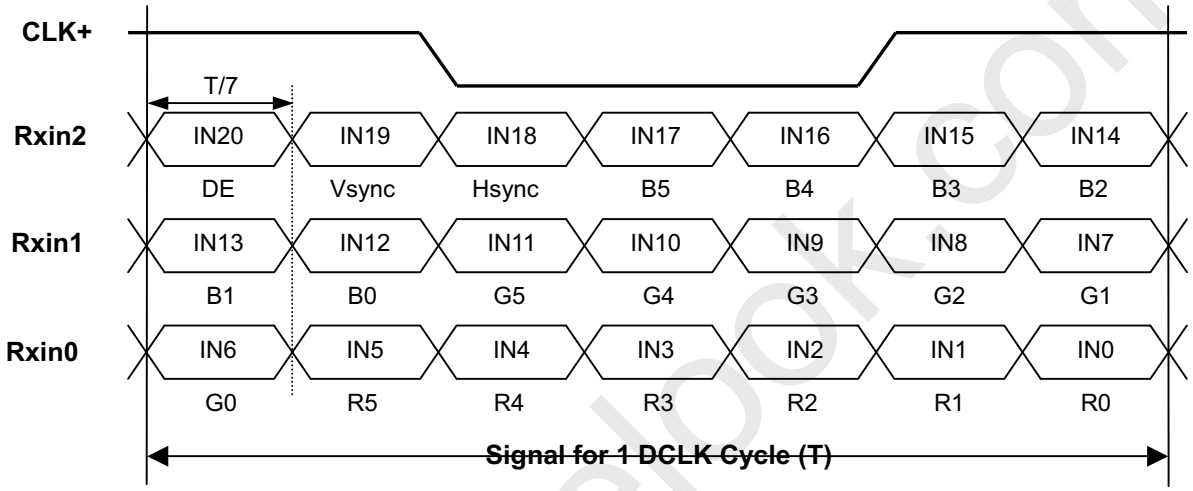
5.2 BACKLIGHT UNIT

| Pin | Symbol | Description | Color |
|---|---|---|---|
| 1 | HV | High Voltage | Pink |
| 2 | LV | Ground | Black |
| 3 | HV | High Voltage | White |
| 4 | LV | Ground | Black |

Note (1) Connector Part No.: JST-BHSR-02VS-1 or equivalent

Note (2) User's connector Part No.: JST-SM02B-BHSS-1-TB or equivalent

5.3 TIMING DIAGRAM OF LVDS INPUT SIGNAL




www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 5.4 COLOR DATA INPUT ASSIGNMENT

The brightness of each primary color (red, green and blue) is based on the 6-bit gray scale data input for the color. The higher the binary input, the brighter the color. The table below provides the assignment of color versus data input.

| Color | | Data Signal | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Red | | | | | | Green | | | | | | Blue | | | | | |
| | | R5 | R4 | R3 | R2 | R1 | R0 | G5 | G4 | G3 | G2 | G1 | G0 | B5 | B4 | B3 | B2 | B1 | B0 |
| Basic Colors | Black | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Red | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Green | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Blue | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Cyan | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Magenta | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Yellow | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | White | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Gray Scale Of Red | Red(0)/Dark | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Red(1) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Red(2) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | Red(61) | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Red(62) | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Red(63) | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gray Scale Of Green | Green(0)/Dark | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Green(1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Green(2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | Green(61) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Green(62) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Green(63) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gray Scale Of Blue | Blue(0)/Dark | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Blue(1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Blue(2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | Blue(61) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |
| | Blue(62) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| | Blue(63) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |

Note (1) 0: Low Level Voltage, 1: High Level Voltage

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 5.5 EDID DATA STRUCTURE

The EDID (Extended Display Identification Data) data formats are to support displays as defined in the VESA Plug & Display and FPDI standards.

| Byte #(decimal) | Byte #(hex) | Field Name and Comments | Value(hex) | Value(binary) |
|---|---|---|---|---|
| 0 | 0 | Header | 00 | 00000000 |
| 1 | 1 | Header | FF | 11111111 |
| 2 | 2 | Header | FF | 11111111 |
| 3 | 3 | Header | FF | 11111111 |
| 4 | 4 | Header | FF | 11111111 |
| 5 | 5 | Header | FF | 11111111 |
| 6 | 6 | Header | FF | 11111111 |
| 7 | 7 | Header | 00 | 00000000 |
| 8 | 8 | EISA ID manufacturer name (“CMO”) | 0D | 00001101 |
| 9 | 9 | EISA ID manufacturer name (Compressed ASCII) | AF | 10101111 |
| 10 | 0A | ID product code (N154I4-L01) | 29 | 00101001 |
| 11 | 0B | ID product code (hex LSB first; N154I4-L01) | 15 | 00010101 |
| 12 | 0C | ID S/N (fixed “0”) | 00 | 00000000 |
| 13 | 0D | ID S/N (fixed “0”) | 00 | 00000000 |
| 14 | 0E | ID S/N (fixed “0”) | 00 | 00000000 |
| 15 | 0F | ID S/N (fixed “0”) | 00 | 00000000 |
| 16 | 10 | Week of manufacture | 17 | 00010111 |
| 17 | 11 | Year of manufacture | 10 | 00010000 |
| 18 | 12 | EDID structure version # (“1”) | 01 | 00000001 |
| 19 | 13 | EDID revision # (“3”) | 03 | 00000011 |
| 20 | 14 | Video I/P definition (“digital”) | 80 | 10000000 |
| 21 | 15 | Max H image size (“33cm”) | 21 | 00100001 |
| 22 | 16 | Max V image size (“21cm”) | 15 | 00010101 |
| 23 | 17 | Display Gamma (Gamma = ”2.2”) | 78 | 01111000 |
| 24 | 18 | Feature support (“Active off, RGB Color”) | 0A | 00001010 |
| 25 | 19 | Red/Green (Rx1, Rx0, Ry1, Ry0, Gx1, Gx0, Gy1, Gy0) | 1C | 00011100 |
| 26 | 1A | Blue/White (Bx1, Bx0, By1, By0, Wx1, Wx0, Wy1, Wy0) | A5 | 10100101 |
| 27 | 1B | Red-x (Rx = “0.598”) | 99 | 10011001 |
| 28 | 1C | Red-y (Ry = “0.337”) | 56 | 01010110 |
| 29 | 1D | Green-x (Gx = ”0.323”) | 52 | 01010010 |
| 30 | 1E | Green-y (Gy = ”0.523”) | 86 | 10000110 |
| 31 | 1F | Blue-x (Bx = ”0.150”) | 26 | 00100110 |
| 32 | 20 | Blue-y (By = ”0.127”) | 20 | 00100000 |
| 33 | 21 | White-x (Wx = ”0.313”) | 50 | 01010000 |
| 34 | 22 | White-y (Wy = ”0.329”) | 54 | 01010100 |
| 35 | 23 | Established timings 1 | 00 | 00000000 |
| 36 | 24 | Established timings 2 | 00 | 00000000 |
| 37 | 25 | Manufacturer’s reserved timings | 00 | 00000000 |
| 38 | 26 | Standard timing ID # 1 | 01 | 00000001 |
| 39 | 27 | Standard timing ID # 1 | 01 | 00000001 |



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



| | | | | |
|---|---|---|---|---|
| 40 | 28 | Standard timing ID # 2 | 01 | 00000001 |
| 41 | 29 | Standard timing ID # 2 | 01 | 00000001 |
| 42 | 2A | Standard timing ID # 3 | 01 | 00000001 |
| 43 | 2B | Standard timing ID # 3 | 01 | 00000001 |
| 44 | 2C | Standard timing ID # 4 | 01 | 00000001 |
| 45 | 2D | Standard timing ID # 4 | 01 | 00000001 |
| 46 | 2E | Standard timing ID # 5 | 01 | 00000001 |
| 47 | 2F | Standard timing ID # 5 | 01 | 00000001 |
| 48 | 30 | Standard timing ID # 6 | 01 | 00000001 |
| 49 | 31 | Standard timing ID # 6 | 01 | 00000001 |
| 50 | 32 | Standard timing ID # 7 | 01 | 00000001 |
| 51 | 33 | Standard timing ID # 7 | 01 | 00000001 |
| 52 | 34 | Standard timing ID # 8 | 01 | 00000001 |
| 53 | 35 | Standard timing ID # 8 | 01 | 00000001 |
| 54 | 36 | Detailed timing description # 1 Pixel clock (“71MHz”, According to VESA CVT Rev1.1) | BC | 10111100 |
| 55 | 37 | # 1 Pixel clock (hex LSB first) | 1B | 00011011 |
| 56 | 38 | # 1 H active (“1280”) | 00 | 00000000 |
| 57 | 39 | # 1 H blank (“160”) | A0 | 10100000 |
| 58 | 3A | # 1 H active : H blank (“1280 : 160”) | 50 | 01010000 |
| 59 | 3B | # 1 V active (”800”) | 20 | 00100000 |
| 60 | 3C | # 1 V blank (”23”) | 17 | 00010111 |
| 61 | 3D | # 1 V active : V blank (”800 :23”) | 30 | 00110000 |
| 62 | 3E | # 1 H sync offset (”48”) | 30 | 00110000 |
| 63 | 3F | # 1 H sync pulse width ("32”) | 20 | 00100000 |
| 64 | 40 | # 1 V sync offset : V sync pulse width (”3 : 6”) | 36 | 00110110 |
| 65 | 41 | # 1 H sync offset : H sync pulse width : V sync offset : V sync width (”48: 32 : 3 : 6”) | 00 | 00000000 |
| 66 | 42 | # 1 H image size (”331 mm”) | 4B | 01001011 |
| 67 | 43 | # 1 V image size (”207 mm”) | CF | 11001111 |
| 68 | 44 | # 1 H image size : V image size (”331 : 207”) | 10 | 00010000 |
| 69 | 45 | # 1 H boarder (”0”) | 00 | 00000000 |
| 70 | 46 | # 1 V boarder (”0”) | 00 | 00000000 |
| 71 | 47 | # 1 Non-interlaced, Normal, no stereo, Separate sync, H/V pol Negatives | 18 | 00011000 |
| 72 | 48 | Detailed timing description # 2 | 00 | 00000000 |
| 73 | 49 | # 2 Flag | 00 | 00000000 |
| 74 | 4A | # 2 Reserved | 00 | 00000000 |
| 75 | 4B | # 2 FE (hex) defines ASCII string (Model Name “N154I4-L01”, ASCII) | FE | 11111110 |
| 76 | 4C | # 2 Flag | 00 | 00000000 |
| 77 | 4D | # 2 1st character of name (“N”) | 4E | 01001110 |
| 78 | 4E | # 2 2nd character of name (“1”) | 31 | 00110001 |
| 79 | 4F | # 2 3rd character of name (“5”) | 35 | 00110101 |
| 80 | 50 | # 2 4th character of name (“4”) | 34 | 00110100 |
| 81 | 51 | # 2 5th character of name (“I”) | 49 | 01001001 |
| 82 | 52 | # 2 6th character of name (“4”) | 34 | 00110100 |
| 83 | 53 | # 2 7th character of name (“-”) | 2D | 00101101 |



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



| | | | | |
|---|---|---|---|---|
| 84 | 54 | # 2 8th character of name (“L”) | 4C | 01001100 |
| 85 | 55 | # 2 9th character of name (“0”) | 30 | 00110000 |
| 86 | 56 | # 2 9th character of name (“1”) | 31 | 00110001 |
| 87 | 57 | # 2 New line character indicates end of ASCII string | 0A | 00001010 |
| 88 | 58 | # 2 Padding with “Blank” character | 20 | 00100000 |
| 89 | 59 | # 2 Padding with “Blank” character | 20 | 00100000 |
| 90 | 5A | Detailed timing description # 3 | 00 | 00000000 |
| 91 | 5B | # 3 Flag | 00 | 00000000 |
| 92 | 5C | # 3 Reserved | 00 | 00000000 |
| 93 | 5D | # 3 FE (hex) defines ASCII string (Vendor “CMO”, ASCII) | FE | 11111110 |
| 94 | 5E | # 3 Flag | 00 | 00000000 |
| 95 | 5F | # 3 1st character of string (“C”) | 43 | 01000011 |
| 96 | 60 | # 3 2nd character of string (“M”) | 4D | 01001101 |
| 97 | 61 | # 3 3rd character of string (“O”) | 4F | 01001111 |
| 98 | 62 | # 3 New line character indicates end of ASCII string | 0A | 00001010 |
| 99 | 63 | # 3 Padding with “Blank” character | 20 | 00100000 |
| 100 | 64 | # 3 Padding with “Blank” character | 20 | 00100000 |
| 101 | 65 | # 3 Padding with “Blank” character | 20 | 00100000 |
| 102 | 66 | # 3 Padding with “Blank” character | 20 | 00100000 |
| 103 | 67 | # 3 Padding with “Blank” character | 20 | 00100000 |
| 104 | 68 | # 3 Padding with “Blank” character | 20 | 00100000 |
| 105 | 69 | # 3 Padding with “Blank” character | 20 | 00100000 |
| 106 | 6A | # 3 Padding with “Blank” character | 20 | 00100000 |
| 107 | 6B | # 3 Padding with “Blank” character | 20 | 00100000 |
| 108 | 6C | Detailed timing description # 4 | 00 | 00000000 |
| 109 | 6D | # 4 Flag | 00 | 00000000 |
| 110 | 6E | # 4 Reserved | 00 | 00000000 |
| 111 | 6F | # 4 FE (hex) defines ASCII string (Model Name“N154I4-L01”, ASCII) | FE | 11111110 |
| 112 | 70 | # 4 Flag | 00 | 00000000 |
| 113 | 71 | # 4 1st character of name (“N”) | 4E | 01001110 |
| 114 | 72 | # 4 2nd character of name (“1”) | 31 | 00110001 |
| 115 | 73 | # 4 3rd character of name (“5”) | 35 | 00110101 |
| 116 | 74 | # 4 4th character of name (“4”) | 34 | 00110100 |
| 117 | 75 | # 4 5th character of name (“I”) | 49 | 01001001 |
| 118 | 76 | # 4 6th character of name (“4”) | 34 | 00110100 |
| 119 | 77 | # 4 7th character of name (“-”) | 2D | 00101101 |
| 120 | 78 | # 4 8th character of name (“L”) | 4C | 01001100 |
| 121 | 79 | # 4 9th character of name (“0”) | 30 | 00110000 |
| 122 | 7A | # 4 9th character of name (“1”) | 31 | 00110001 |
| 123 | 7B | # 4 New line character indicates end of ASCII string | 0A | 00001010 |
| 124 | 7C | # 4 Padding with “Blank” character | 20 | 00100000 |
| 125 | 7D | # 4 Padding with “Blank” character | 20 | 00100000 |
| 126 | 7E | Extension flag | 00 | 00000000 |
| 127 | 7F | Checksum | 1C | 00011100 |



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



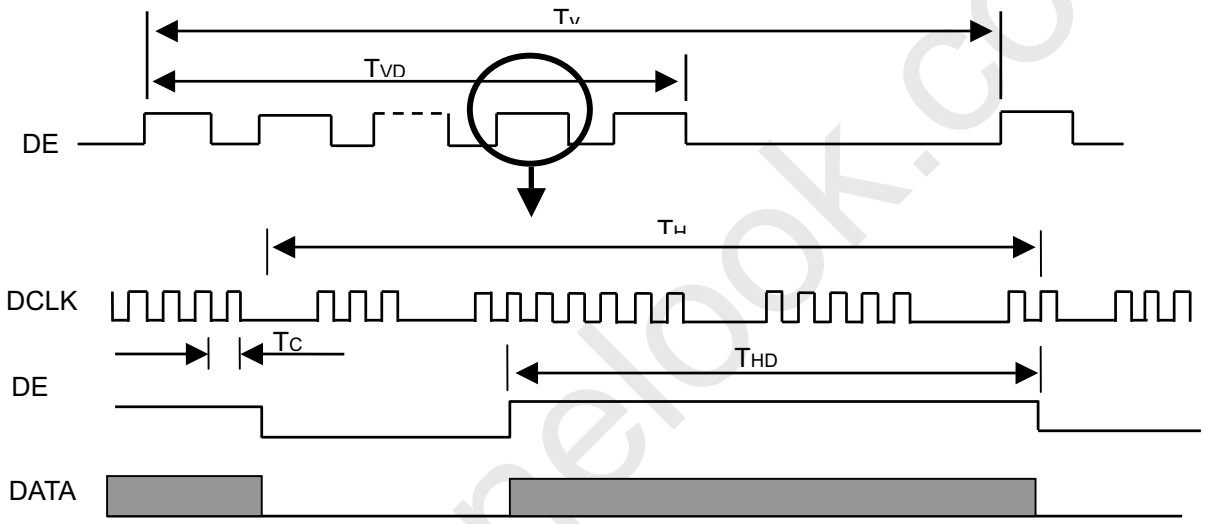
# 6. INTERFACE TIMING

## 6.1 INPUT SIGNAL TIMING SPECIFICATIONS

The input signal timing specifications are shown as the following table and timing diagram.

| Signal | Item | Symbol | Min. | Typ. | Max. | Unit | Note |
|---|---|---|---|---|---|---|---|
| DCLK | Frequency | 1/Tc | - | 71 | 80 | MHz | - |
| DE | Vertical Total Time | TV | 810 | 823 | 1000 | TH | - |
| | Vertical Addressing Time | TVD | 800 | 800 | 800 | TH | - |
| | Horizontal Total Time | TH | 1360 | 1440 | 1600 | Tc | - |
| | Horizontal Addressing Time | THD | 1280 | 1280 | 1280 | Tc | - |

**INPUT SIGNAL TIMING DIAGRAM**




www.panelook.com

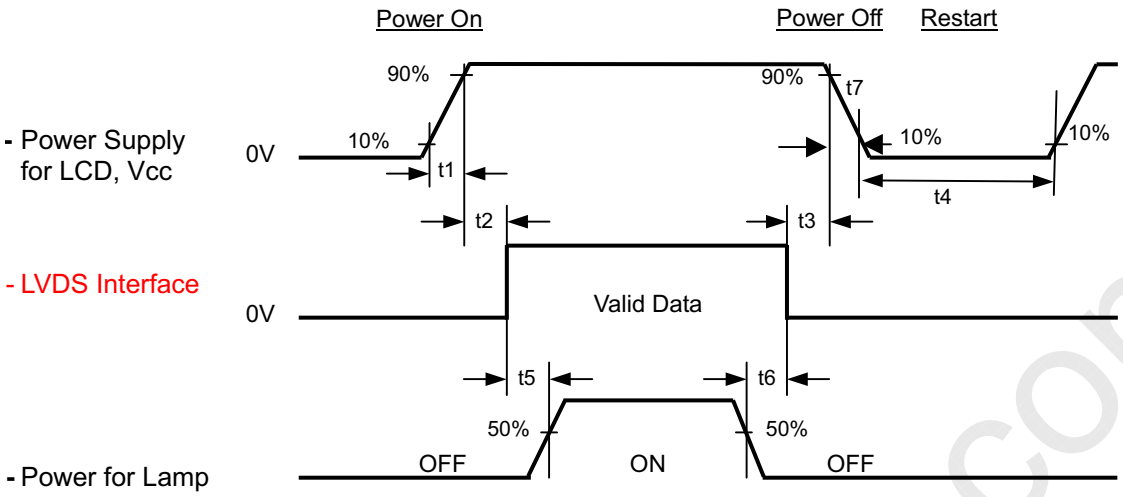


One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 6.2 POWER ON/OFF SEQUENCE




Timing Specifications:

0 < t1 ≦ 20 msec

0 < t2 ≦ 50 msec

0 < t3 ≦ 50 msec

t4 ≧ 200 msec

t5 ≧ 100 msec

t6 ≧ 0 msec

0 < t7 ≦ 50 mse

Note (1) Please follow the power on/off sequence described above. Otherwise, the LCD module might be damaged.

Note (2) Please avoid floating state of interface signal at invalid period. When the interface signal is invalid, be sure to pull down the power supply of LCD Vcc to 0 V.

Note (3) The Backlight inverter power must be turned on after the power supply for the logic and the interface signal is valid. The Backlight inverter power must be turned off before the power supply for the logic and the interface signal is invalid.

Note (4) Sometimes some slight noise shows when LCD is turned off (even backlight is already off). To avoid this phenomenon, we suggest that the Vcc falling time is better to follow 5≦t7≦300 ms.

www.panelook.com

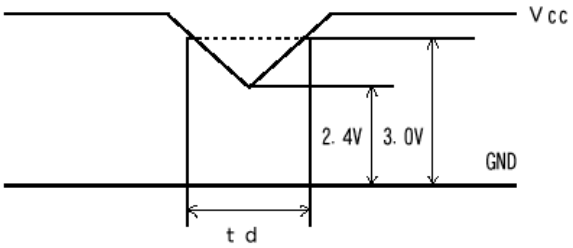


One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



6.3 Momentary Voltage Drops




(1) When 2.4V ≦ Vcc ＜3.0V and td≦10ms , the unit must work normally when VCC return to 3.0V.

(2) When Vcc < 2.4V, momentary voltage shall conform to the input voltage sequence.

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# 7. OPTICAL CHARACTERISTICS

## 7.1 TEST CONDITIONS

| Item | Symbol | Value | Unit |
|---|---|---|---|
| Ambient Temperature | Ta | 25±2 | °C |
| Ambient Humidity | Ha | 50±10 | %RH |
| Supply Voltage | $V_{CC}$ | 3.3 | V |
| Input Signal | According to typical value in "3. ELECTRICAL CHARACTERISTICS" | | |
| Inverter Current | $I_L$ | 6.0 | mA |
| Inverter Driving Frequency | $F_L$ | 55 | KHz |
| Inverter | Darfon-VK.12164.101 | | |

The measurement methods of optical characteristics are shown in Section 7.2. The following items should be measured under the test conditions described in Section 7.1 and stable environment shown in Note (6).

## 7.2 OPTICAL SPECIFICATIONS

| Item | | Symbol | Condition | Min. | Typ. | Max. | Unit | Note |
|---|---|---|---|---|---|---|---|---|
| Contrast Ratio | | CR | $\theta_x$=0°, $\theta_Y$ =0° Viewing Normal Angle | (350) | (500) | - | - | (2), (5) |
| Response Time | | $T_R$ | | - | (2) | (8) | ms | (3) |
| | | $T_F$ | | - | (4) | (12) | ms | |
| Central Luminance of White | | $L_C$ | | 420 | 500 | | cd/m$^2$ | (4), (6) |
| Color Chromaticity | Red | Rx | | TYP. -0.03 | (0.638) | TYP. +0.03 | - | (1) |
| | | Ry | | | (0.347) | | - | |
| | Green | Gx | | | (0.295) | | - | |
| | | Gy | | | (0.600) | | - | |
| | Blue | Bx | | | (0.142) | | - | |
| | | By | | | (0.083) | | - | |
| | White | Wx | | | (0.313) | | - | |
| | | Wy | | | (0.329) | | - | |
| | Color Gamut | C.G. | | | (70) | | % | (7) |
| Viewing Angle | Horizontal | $\theta_x$+ | CR≥10 | 40 | 45 | - | Deg. | (1),(5) |
| | | $\theta_x$- | | 40 | 45 | - | | |
| | Vertical | $\theta_Y$+ | | 15 | 20 | - | | |
| | | $\theta_Y$- | | 40 | 45 | - | | |
| White Variation of 5 Points | | $\delta W_{5p}$ | $\theta_x$=0°, $\theta_Y$ =0° (BM-5A) | (75) | - | - | % | (5),(6) |

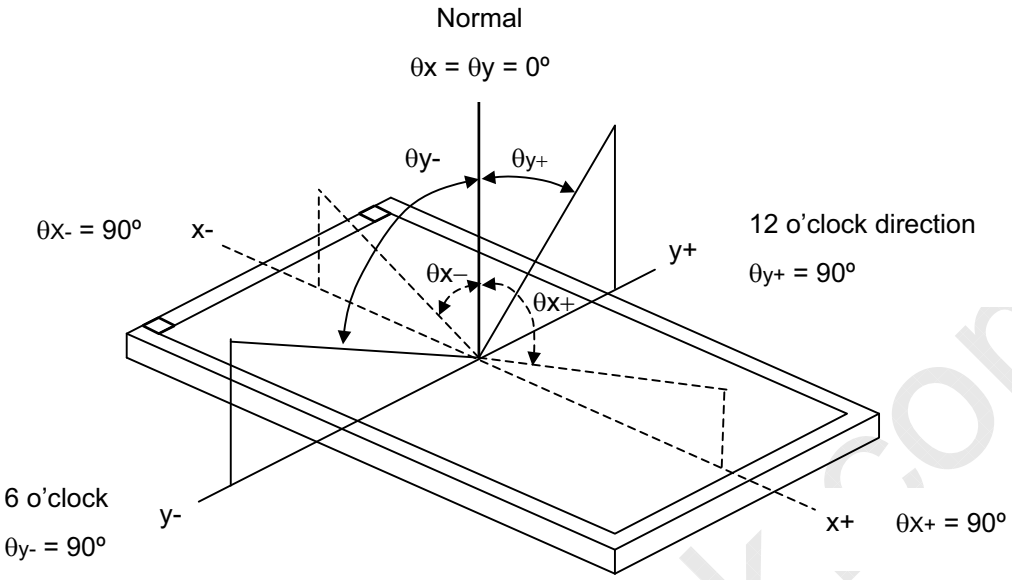


One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



Note (1) Definition of Viewing Angle (θx, θy):




Note (2) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

Contrast Ratio (CR) = L63 / L0

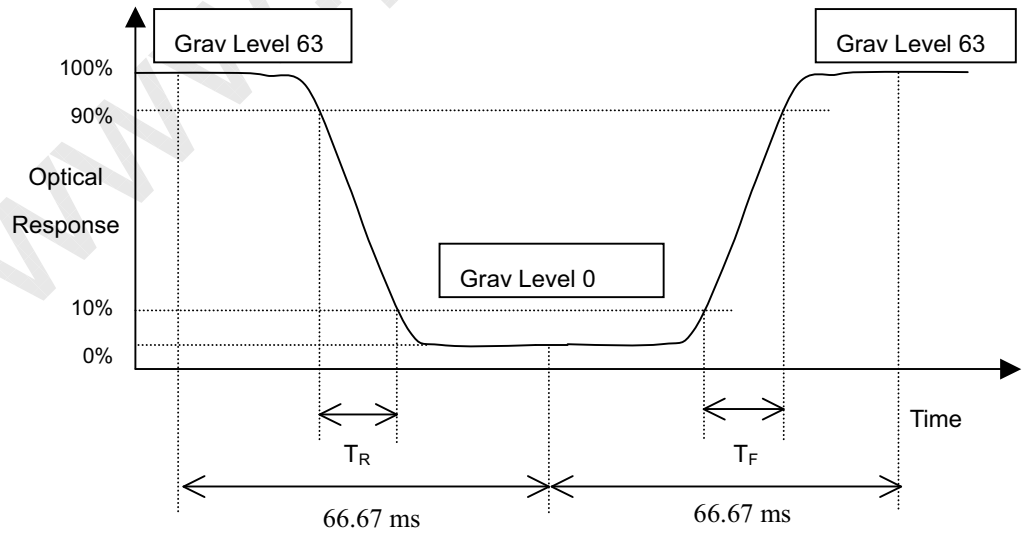
L63: Luminance of gray level 63

L 0: Luminance of gray level 0

CR = CR (5)

CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (6).

Note (3) Definition of Response Time ($T_R$, $T_F$):






One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



Note (4) Definition of Average Luminance of White ($L_{AVE}$):

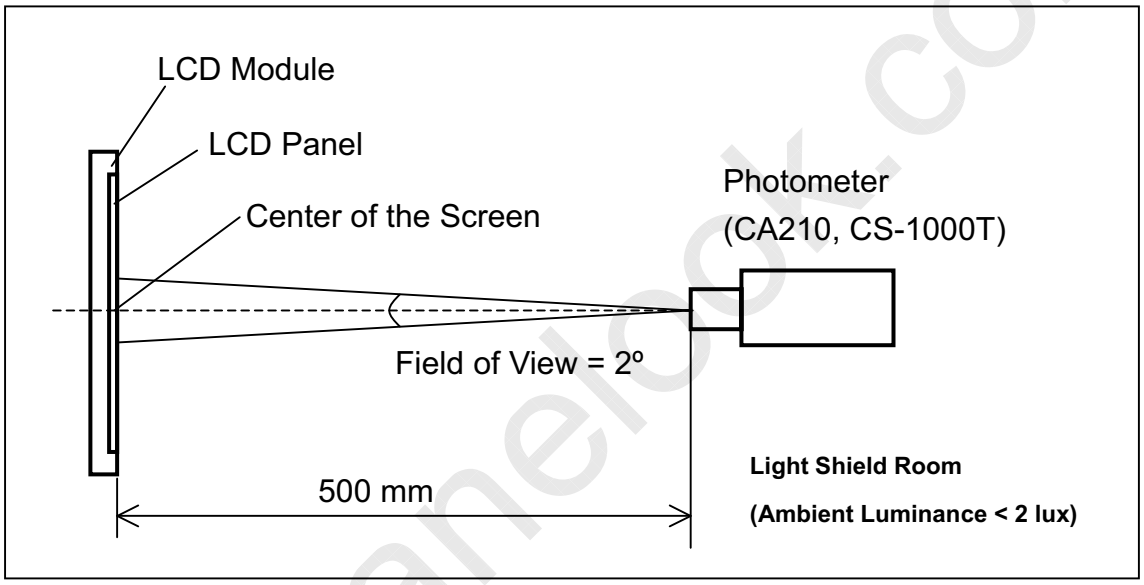
Measure the luminance of gray level 63 at 5 points

$L_{AVE}$ = [L (1)+ L (2)+ L (3)+ L (4)+ L (5)] / 5

L (x) is corresponding to the luminance of the point X at Figure in Note (6)

Note (5) Measurement Setup:

The LCD module should be stabilized at given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.




www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

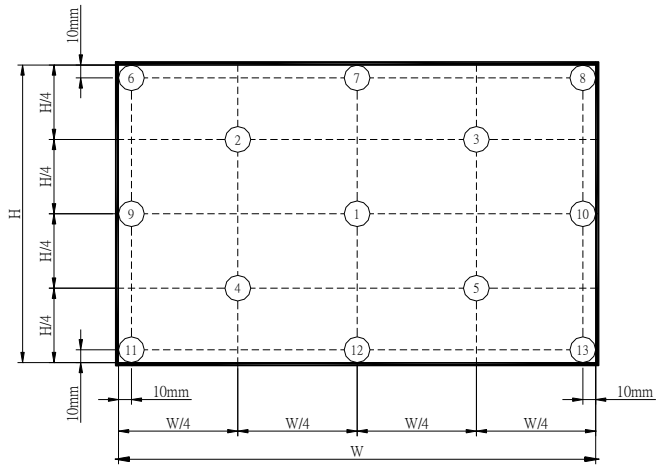


Note (6) Definition of White Variation (δW):

Measure the luminance of gray level 63 at 5 points

$\delta W_{5p}$ = Minimum [L (10)+ L (11)+ L (12)+ L (13)+ L (5)] / Maximum [L (10)+ L (11)+ L (12)+ L (13)+ L (5)]

$\delta W_{13p}$ = Minimum [L (1) ~ L (13)] / Maximum [L (1) ~ L (13)]




Ⓧ : Test Point

X=1 to 13

Active area

Note (7) Definition of color gamut (C.G%):

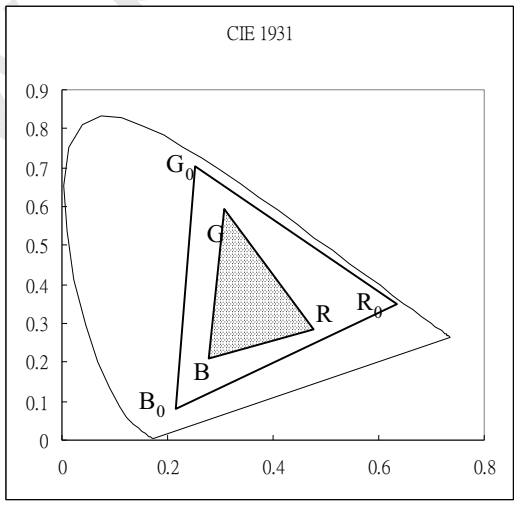
C.G%= R G B / $R_0$ $G_0$ $B_0$,*100%

$R_0$, $G_0$, $B_0$ : color coordinates of red, green, and blue defined by NTSC, respectively.

R, G, B : color coordinates of module on 63 gray levels of red, green, and blue, respectively.

$R_0$ $G_0$ $B_0$ : area of triangle defined by $R_0$, $G_0$, $B_0$

. R G B: area of triangle defined by R, G, B






One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# 8. PRECAUTIONS

## 8.1 HANDLING PRECAUTIONS

(1) The module should be assembled into the system firmly by using every mounting hole. Be careful not to twist or bend the module.

(2) While assembling or installing modules, it can only be in the clean area. The dust and oil may cause electrical short or damage the polarizer.

(3) Use fingerstalls or soft gloves in order to keep display clean during the incoming inspection and assembly process.

(4) Do not press or scratch the surface harder than a HB pencil lead on the panel because the polarizer is very soft and easily scratched.

(5) If the surface of the polarizer is dirty, please clean it by some absorbent cotton or soft cloth. Do not use Ketone type materials (ex. Acetone), Ethyl alcohol, Toluene, Ethyl acid or Methyl chloride. It might permanently damage the polarizer due to chemical reaction.

(6) Wipe off water droplets or oil immediately. Staining and discoloration may occur if they left on panel for a long time.

(7) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contacting with hands, legs or clothes, it must be washed away thoroughly with soap.

(8) Protect the module from static electricity, it may cause damage to the C-MOS Gate Array IC.

(9) Do not disassemble the module.

(10) Do not pull or fold the lamp wire.

(11) Pins of I/F connector should not be touched directly with bare hands.

## 8.2 STORAGE PRECAUTIONS

(1) High temperature or humidity may reduce the performance of module. Please store LCD module within the specified storage conditions.

(2) It is dangerous that moisture come into or contacted the LCD module, because the moisture may damage LCD module when it is operating.

(3) It may reduce the display quality if the ambient temperature is lower than 10 ºC. For example, the response time will become slowly, and the starting voltage of lamp will be higher than the room temperature.

## 8.3 OPERATION PRECAUTIONS

(1) Do not pull the I/F connector in or out while the module is operating.

(2) Always follow the correct power on/off sequence when LCD module is connecting and operating. This can prevent the CMOS LSI chips from damage during latch-up.

(3) The startup voltage of Backlight is approximately 1000 Volts. It may cause electrical shock while assembling with inverter. Do not disassemble the module or insert anything into the Backlight unit.



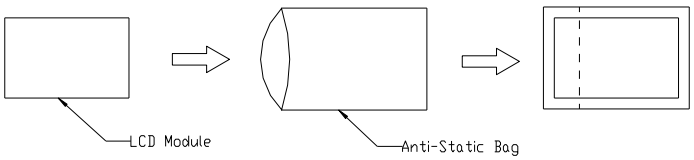
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

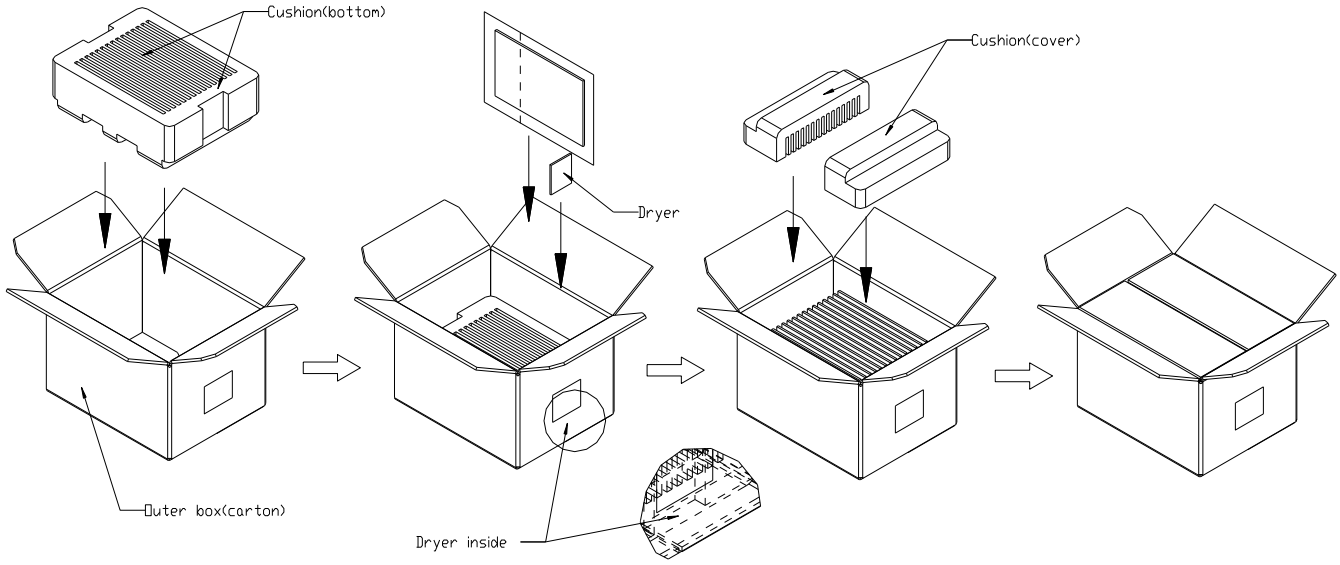


# 9. PACKING

## 9.1 CARTON




Box Dimension: 489(L)*382(W)*330(H)
Weight: Approx. 10.8 kg(15 module per. 1 box)




Packing testing criteria :

(1) Packing drop : 1 corner, 3 edges, 6 faces, each direction for one time, follow ISTA standard.

(2) Packing vibration : Random, follow ISTA standard.

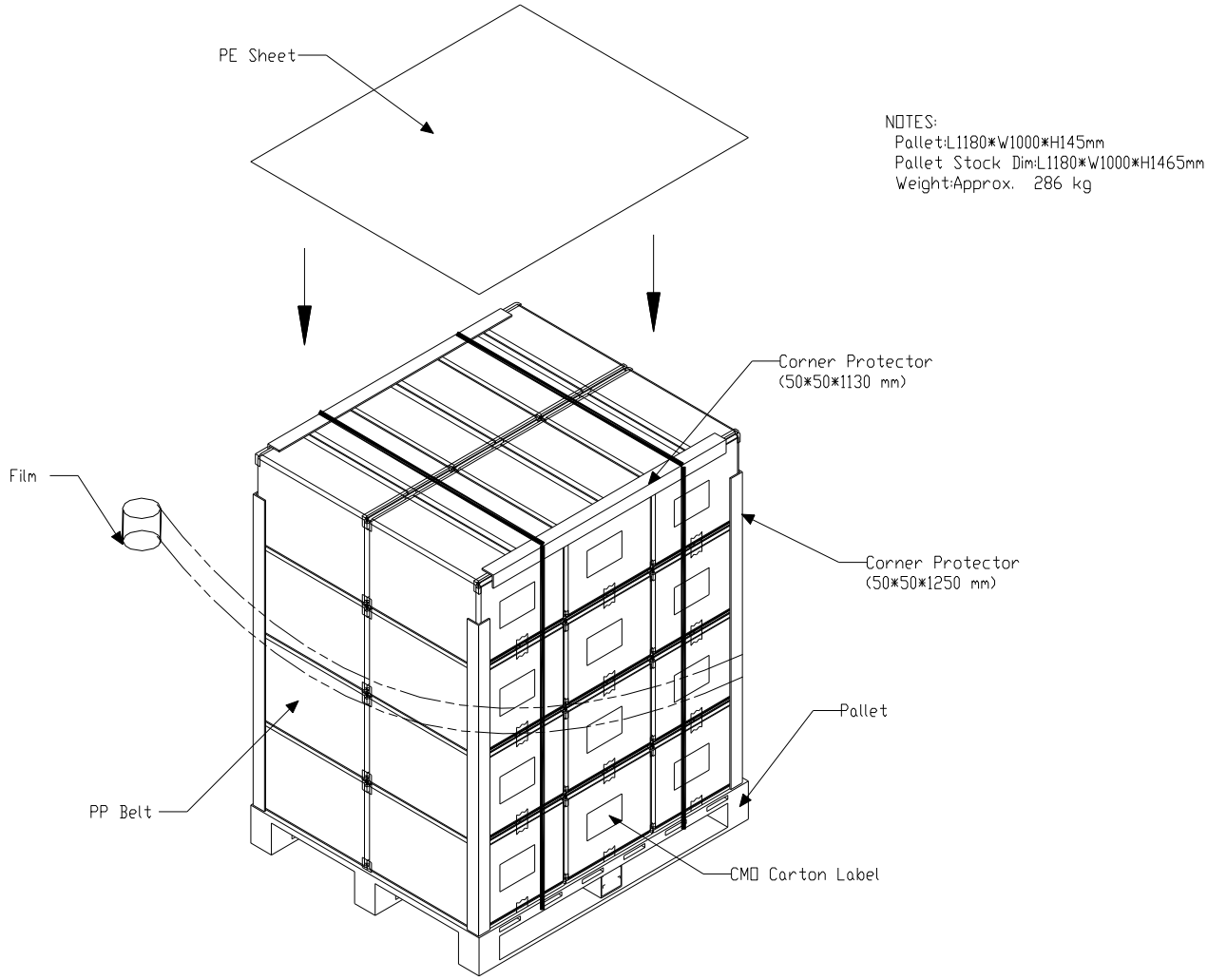


One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



9.2 PALLET






One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# 10. DEFINITION OF LABELS

## 10.1 CMO MODULE LABEL

The barcode nameplate is pasted on each module as illustration, and its definitions are as following explanation.

(a) Model Name: N154I4 - L01

(b) Revision: Rev. XX, for example: C1, C2 …etc.

(c) Serial ID: X X X X X X Y M D L N N N N

- Serial No.
- Product Line
- Year, Month, Date
- CMO Internal Use
- Revision
- CMO Internal Use

Serial ID includes the information as below:

(a) Manufactured Date: Year: 1~9, for 2001~2009

Month: 1~9, A~C, for Jan. ~ Dec.

Day: 1~9, A~Y, for 1st to 31st, exclude I , O and U

(b) Revision Code: cover all the change

(c) Serial No.: Manufacturing sequence of product

(d) Product Line: 1 -> Line1, 2 -> Line 2, …etc.



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



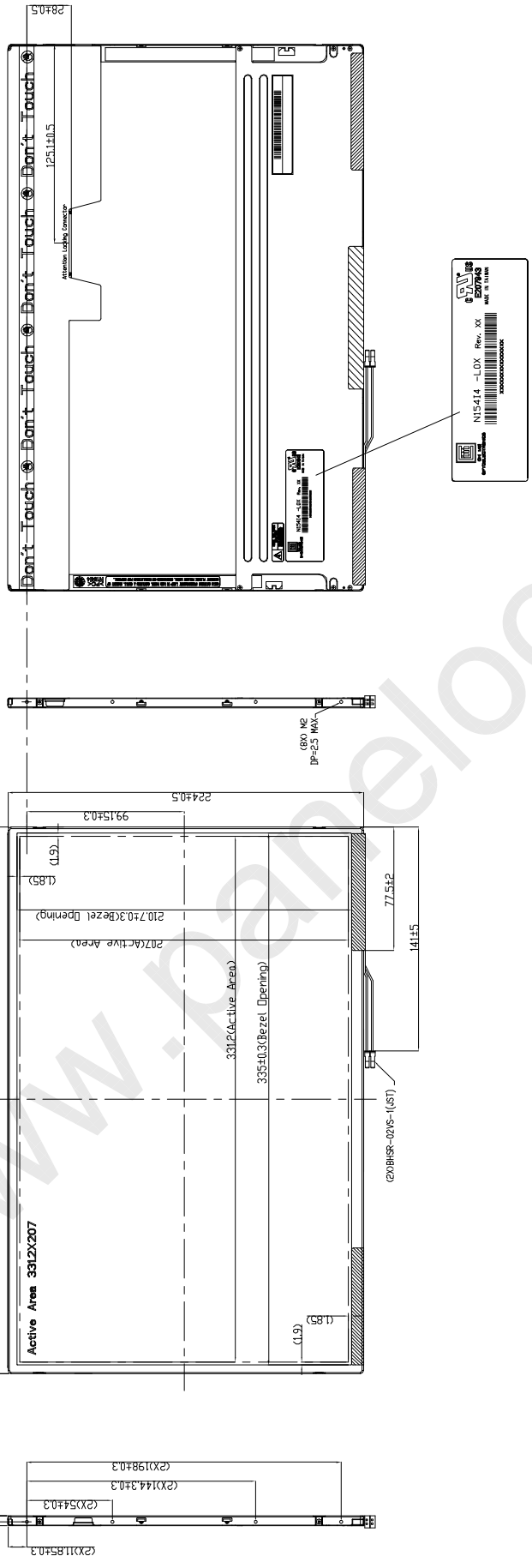
10.2 CARTON LABEL

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心




NOTE:
1. GENERAL TOLERANCE : ±0.5mm
2. THE SCREW TORQUE FOR MOUNTING SHALL NOT EXEED 2.0kgf-cm (0.196N-m).
3. THE GAP BETWEEN THE PANEL AND THE BEZEL IS 0.5mm MAX.
4. SIGNAL INTERFACE CONNECTOR : FI-XB30SRL-HF11(JAE)
5. CCFL CONNECTOR : BHSR-02VS-1(JST) × 2

www.panelook.com

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com